REMARKS

I. STATUS OF THE CLAIMS

Claims 1-35 and 44-48 were pending at the time of the Action. Claims 28-35 and 46-48 stand withdrawn from consideration. Claims 1, 4, and 19 are amended to further clarify the claims. No new matter has been added. Claims 1-27, 44, and 45 are currently under examination.

II. CLAIM OBJECTIONS

Claims 4, 5, and 6 are objected to as containing informalities. Applicant does not fully understand the basis of the claim objections. However, applicants have clarified claim 1 by using phrasing equivalent to that originally present in claim 1. Current claim 1 now reads "...wherein concomitant binding of the first target molecule to ~~two or more of the~~ at least a first and a second binding ~~elements~~ element results in a high affinity interaction with the first target molecule..." This clarification should render the objection moot.

III. REJECTION UNDER 35 U.S.C. §112

Claim 19 is rejected under 35 U.S.C. §112 as being indefinite. Applicants have corrected the dependency of claim 19 to depend from claim 18. Applicants request the withdrawal of the rejection.

IV. REJECTION UNDER 35 U.S.C. §103

The action sets forth various rejections under 35 U.S.C. §103. (A) Claims 1, 2, 4, 5, 15-18, and 44 are rejected as being obvious over Dower et al. (U.S. Patent 6,465,430, the '430 patent). (B) Claim 3 is rejected as being obvious in view of the '430 patent in light of Bellet et al. (U.S. Patent 5,011,771, the '771 patent). (C) Claims 6, 7, 8, and 10-13 are rejected as being

obvious in view of the '430 patent in light of Ring et al. (U.S. Patent 5,705,614, the '614 patent). (D) Claims 9 and 45 are rejected as being obvious in view of the '430 patent in light of Liotta et al. (U.S. Patent 6,153,596, the '596 patent). (E) Claim 14 is rejected as being obvious in view of the '430 patent in light of Schwartz (U.S. Patent 6,800,728, the '728 patent). (F) Claims 19, 20, and 22 are rejected as being obvious in view of the '430 patent in light of Chin et al. (U.S. Patent 6,197,599, the '599 patent). (G) Claims 23-26 are rejected as being obvious in view of the '430 patent in light of the '614, '771, and '599 patents). (H) Claim 21 is rejected as being obvious in view of the '430 patent in light of Monteforte (U.S. Patent 7,091,046, the '046 patent). (I) Claim 27 is rejected as being obvious in view of the '430 patent in light of the '614, '771, and '599 patents). Applicants traverse all rejections under 35 U.S.C. §103.

To establish a *prima facie* case of obviousness (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Furthermore, obviousness requires a suggestion of all the elements in a claim (*CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342 [68 USPQ2d 1940] (Fed. Cir. 2003)) and "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co.l v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 [82 USPQ2d 1385] (2007).

The obviousness rejections asserted in the Action rely primarily on the '430 reference. Applicants note that the '430 reference taken alone or in combination with the other cited references does not suggest all elements of the claimed invention and lacks a suggestion or reason to modify the prior art. A *prima facie* case of obviousness has not been established.

A. Claims 1, 2, 4, 5, 15-18, and 44 are patentable over the '430 patent

The '430 patent does not suggest or teach a plurality of low-to-moderate affinity binding elements distributed on a surface of, and operatively coupled to a support, as recited in claim 1. The '430 patent describes a target molecule (the TPO receptor) distributed on and operatively coupled to a support providing an array of a single target molecule, not a plurality of distinct binding elements. Applicants note that the binding elements as described on page 4, lines 21-22 do not compete for binding to the target molecule and are distinct binding elements, further contrasting the single target molecule and the plurality of binding elements currently claimed. The ligand-receptor interaction discussed in the '430 patent (Col. 13, lines 25-38) is based on a ligand binding more than one of the ***same target molecule***, not a target molecule binding a ***plurality of distinct binding elements***. The Action also refers to the '430 patent emphasizing that the multivalent binding permits detection of binding events of low intrinsic affinity (the Action page 4, citing the '430 patent col. 33, lines 42-55). Applicants note that this discussion in the '430 patent is directed to multiple copies of the same target coupled to a substrate interacting with a fusion protein complex. Thus, the '430 patent does not describe or suggest "a ***plurality of low-to-moderate affinity binding elements*** distributed on a surface of, and operatively coupled to a support, wherein ***concomitant binding of the first target molecule to at least a first and a second binding element results in a high affinity interaction with the first target molecule***, said binding elements being peptides, peptoids (N-substituted oligoglycines) or other peptide-like oligomers." (emphasis added)

Furthermore, the Action does not provide a suggestion or reason for modifying the prior art to obviate the claimed invention. In fact, the '430 patent would be rendered inoperable if so modified, effectively teaching away from such a modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984)(the modification of the prior art rendered the prior art inoperable for its intended purpose, effectively teaching away from such modification)). If two or more different receptors are coupled to a support, then one of skill would not know which receptor is binding which ligand. If a plurality of ligands are coupled to the support then one of skill would be unable to propagate and enhance the ligands that bind the target receptor, as described in columns 11-12 of the '430 patent. Applicants are at a loss as to how one of skill would identify a receptor agonist (the intended purpose of the '430 patent methods and compositions) using the teachings of the '430 patent as modified to obviate the current claims. Such a modification of the '430 patent would render it inoperable, providing strong evidence supporting the non-obviousness of the current invention.

Applicants respectfully request reconsideration of the '430 patent and its modification to render the claimed invention obvious. Withdrawal of the rejections is also requested.

B. Claim 3 is patentable over the '430 patent in light of the '771 patent

Applicants note that if an independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

C. Claims 6, 7, 8, and 10-13 are patentable over the '430 patent in light of the '614 patent

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260,*

1266 (Fed. Cir. 1992) ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

D. Claims 9 and 45 are patentable over the '430 patent in light of the '596 patent

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

E. Claim 14 is patentable over the '430 patent in light of the '728 patent

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

F. Claims 19, 20, and 22 are patentable over the '430 patent in light of the '599 patent

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

G. Claims 23-26 are patentable over the '430 patent in light of the '614, '771, and '599 patents

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

H. Claim 21 is patentable over the '430 patent in light of the '046 patent

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

I. Claim 27 is patentable over the '430 patent in light of the '614, '771, and '599 patents

An independent claim is not obvious then claims that depend from the non-obvious claim cannot be obvious because they depend from a nonobvious claim. *In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992)* ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.").

IV. CONCLUSION

In light of the foregoing, applicants respectfully submit that all claims are in condition for allowance, and an early notification to that effect is requested. The examiner is invited to contact the undersigned attorney at (512) 536-3167 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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Date: July 30, 2008